

REMARKS

Claims 1, 3-12, 14, 18-19, 21, and 23-30 remain pending in this application. Claims 1, 5, 7, 8, 10-12, 14, 18, 19, 21, 23-30 are independent. Claim 23 has been amended to correct an obvious grammatical error. No claims have been added or canceled by this Amended.

Unpatentability Rejection over Chuah in View of Shimojo

Withdrawal of the rejection of claims 23, 24, and 27 under 35 U.S.C. §103(a) as allegedly being unpatentable over Chuah (US 6,400,695) in view of Shimojo (US 5,787,072) is requested. The Examiner has failed to make a *prima facie* case of unpatentability.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria offer useful insights. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations.¹ Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.² The Supreme Court recently held that it is necessary, *inter alia*, for a court to look to interrelated teachings of multiple patents in order to determine whether there was an apparent reason to combine the known elements in the claimed. In this regard, the Court held "[t]o facilitate review, this analysis should be made explicit."³ "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."⁴

In general, and for all the present rejections, Chuah in view of Shimojo at least do not teach or suggest limitations pertaining to the various recitations of either a first connection leg supporting flow control on a lower transmission protocol level, or recitations pertaining to a third connection leg supporting flow control on the lower transmission protocol level, and tunneling

¹ See MPEP §2143.

² *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

³ *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. ____ (2007) (see p. 14).

⁴ See *Id.*, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

lower-level flow control information through the lower transmission protocol level of the second leg between the first and third legs in order to provide end-to-end flow control, as variously recited in the pending claims.

Specific Deficiencies of Chuah and Shimojo

Independent Claim 23

Neither Chuah nor Shimojo, either alone or in combination, disclose, teach or suggest a mobile communications system that includes, *inter alia*, "***a first connection leg supporting flow control on a lower transmission protocol level underlying a user level***, an intermediate second connection leg not supporting flow control on the lower transmission level, ***a third connection leg supporting flow control on the lower transmission protocol level***, ***a first network element of the mobile communications system between the first and second legs***, ***a second network element of the mobile communications system between the second and third legs***, ***wherein the first and second network elements are configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control...***," as recited in previously-presented independent claim 23 (*emphasis added*).

Independent Claim 24

Neither Chuah nor Shimojo, either alone or in combination, disclose, teach or suggest a network element for a mobile communications system that includes, *inter alia*, "a processor connected between a first connection leg and an intermediate second connection leg, ***wherein the processor is configured to relay communication between said first connection leg supporting flow control on a lower transmission protocol level underlying a user level on said first connection leg***, ***and said intermediate second connection leg connected to a second network element of the mobile communications system relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level***, wherein the second leg does not support flow control on the lower transmission level, ***wherein the processor is configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to***

provide end-to-end flow control and thereby data integrity over the connection on the lower transmission protocol layer...,” as recited in previously-presented independent claim 24 (*emphasis added*).

Independent Claim 27

Finally, neither Chuah nor Shimojo, alone or in combination, disclose, teach or suggest a radio network controller for a mobile communications system network wherein, the network controller includes, *inter alia*, “a processor connected between a first connection leg and an intermediate second connection leg, *wherein the processor is configured to relay communication between said first connection leg supporting flow control on a lower transmission protocol level underlying a user level on said first connection leg, and said intermediate second connection leg connected to a second network element of the mobile communications system relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level*, wherein the second leg does not support flow control on the lower transmission level, *wherein the processor is configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control...*,” as recited in previously-presented independent claim 27 (*emphasis added*).

Discussion of Chuah and its Deficiencies

According to the Abstract, Chuah is purportedly directed to methods and apparatus for retransmission based access priority in a MAC protocol of a communications system, for example, with respect to UMTS RACH. The invention asserts to introduce several access priority methodologies including: (i) random chip delay access priority (RCDAP); (ii) random backoff based access priority (RBBAP); (iii) variable logical channel based access priority (VLCAP); (iv) UMTS-specific variable logical channel based access priority (VLCAP’); (v) probability based access priority (PBAP); and (vi) retransmission based access priority (REBAP). Each methodology associates some parameter or parameters to access priority classes in order to influence the likelihood of a remote terminal completing a successful access request to a base station.

Chuah teaches a conventional UMTS access network and LMTS protocol stacks in FIGS. 1 and 2. LAC/LRC/MAC are used in the radio interface **Uu**, and LAC/RLC/IP protocols are used in the interface **lub** between node B and the radio network controller RNC. Chuah also teaches that Asynchronous Transfer Mode (ATM) may be used in the L2 layer at the interface **lub**. Thus, the RLC/MAC protocols at the radio interface **Uu** support flow control, whereas the ATM protocol in the layer L2 at the interface **lub** does not support flow control. Arguably, radio interface **Uu** could then be seen as corresponding to a first connection leg, and interface **lub** could be seen as corresponding to the intermediate second connection leg.

The Examiner asserts that Chuah teaches a first connection leg supporting flow control by the connection in FIG. 1 between a mobile terminal 2 and node-B6 (*i.e.* the radio interface **Uu**), and that the connection between the node-B6 and the RNC 10 (*i.e.*, the interface **lub**) through RNC 14 to user equipment 4 via another node-B6 teaches an intermediate second connection leg that does not support flow control on the lower transmission level.

However, as recognized by the Examiner, the RLC/MAC protocols at the radio interface **Uu** support flow control, whereas the ATM protocol in layer L2 at the interface **lub** does not. Accordingly, contrary to the Examiner's contentions, *the radio interface Uu does not correspond to a first connection leg, and interface lub does not correspond to an intermediate second connection leg as variously recited in the rejected claims.*

The Examiner goes on to assert that Chuah teaches a *third* connection leg supporting flow control on the lower transmission protocol level (with reference to FIG. 1, connection 8 between user equipment 4 and NODE-B 6, WCDMA, col. 2:1-5, FIG. 2, LAC, col. 2:39-41).

However, the Examiner incorrectly alleges that a link from RNC 10 to another RNC 14 and further to another node-B6 to which user equipment 4 is connected belongs to "the intermediate second connection leg," and that the connection leg between user equipment 4 and another node-B6 teaches Applicants' claimed third connection leg.

The Examiner incorrectly assumes that the dotted dash line depicted between RNCs 10 and 14 is an ATM connection. Applicants submit that there is absolutely no such teaching or suggestion provided by Chuah. To the contrary, and in view of the fact that a dotted dash line is

used in Chuah to denote this connection instead of the solid line used to denote the connection between RNC 10 and the first node-B, these connections are submitted by Applicants as being of different types, *i.e.*, they do not belong to "the intermediate second connection leg" as alleged by the Examiner.

Applicants respectfully traverse this characterization of the applied art. The connection between the other node-B6 and the RNC 14 is ***not*** related to the connection between the first node-B6 and the RNC 10. There is absolutely no teaching or suggestion by Chuah that these connections would be linked with a connection between RNCs 10 and 14. In contrast, Chuah teaches that RNCs connect the remote terminal to the core network(s), as previously noted above. The Examiner has incorrectly concluded that the connection leg between another user equipment 4 and another node-B6 in FIG. 1 corresponds with the claimed third connection leg. However, Chuah's leg is also a radio interface ***Uu in a totally different subnetwork 18***. Thus, the connection leg between the user equipment 4 and node B6 has ***no relationship*** to the other two connections. As a result, the Examiner's proposed interpretation of ***Chuah fails to teach the variously claimed third connection leg*** in combination with the first and second connections.

The network element 10 to which the alleged second connection leg from the first node-B terminates is RNC 10. RNCs 10 and 14 manage radio interfaces in different subnetworks 18, and the inter-RNC link is a separate connection or a series of connections. Moreover, there is no disclosure, teaching, or suggestion that pertains to the inter-RNC connection in Chuah, beyond the use of a dotted dashed line. To reiterate, the dotted dashed lines in Chuah appears to merely denote signaling connections, and not traffic links. ***Applicants point out that all connections that clearly and reasonably may be considered as traffic links in FIG. 1 are represented by solid lines.***

In addition, Chuah states at col. 2:28-31 that the subnetworks 18 are merely wireless service provider networks, and that "CN 1" to "CN n" are core networks to which the remote terminals are ultimately coupled. Thus, the remote terminal in UMTS provides the connection via the core network as is indicated by solid lines in FIG. 1. In the case of a connection between two remote terminals 2 and 4, they both would have a separate connection to a core network, and the connections are linked in the core network(s).

Finally, and *as admitted by the Examiner, Chuah is completely silent on providing a teaching or suggestion that the first and second network elements are configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between the first and third legs in order to provide end-to-end flow control and thereby data integrity over the connection on the lower transmission protocol layer.*

Discussion of Shimojo and its "Teaching Away"

To make up for this admitted deficiency of Chuah, the Examiner alleges that Shimojo teaches tunneling flow control information through the lower transmission protocol level (ATM, col. 1:12-14) of the second leg between the first and third legs in order to provide end-to-end flow control and thereby data integrity over the connection on the lower transmission protocol layer, and cites Shimojo at col. 3:48-67 as teaching that a large number of switching nodes not having flow control, tunneling, downstream flow control function will transmit control information to an upstream apparatus. The Examiner indicates that he views Applicants' claimed second leg as corresponding to the large number of switching nodes not having flow control in Shimojo.

According to its Abstract, Shimojo is purportedly directed to a flow control apparatus and flow control method wherein the flow control apparatus is connected to an ATM switch having a plurality of input ports and a plurality of output ports provided among ATM exchanges through transmission links. A buffer is connected to the input port and temporarily stores ATM cells output from the ATM switch, wherein the ATM cells are transmitted through the ATM switch to the output port connected to a next ATM exchange. A controller sets up the ATM switch wherein first-free information cells conveying the free-buffer information of the buffer input to the input port are transmitted to the output port connected to a preceding ATM exchange. The controller also controls transmission of the ATM cells from the buffer based on second free-buffer information cells transmitted from the next ATM exchange and traffic parameters for guaranteeing transmission quality.

Generally, Shimojo relates to flow control between a pair of devices having an ATM network in between (*i.e., no real first, second, and third legs exist in Shimojo*, as in Applicants' claims). In contrast to Applicants' variously claimed invention, flow control is provided

between a pair of devices at the ends of the first leg, and flow control is also provided between a pair of devices at the ends of the third leg. The flow control information is tunnelled between the devices connecting the first and third legs through a second leg to allow complete, end-to-end flow control. Thus, Shimojo has only one end-to-end segment or leg (between a single pair of devices) from the flow control point of view, whereas in the claimed invention, there are three flow control legs, each between a different pair of devices.

More specifically, the portion of Shimojo at col. 3:48-57 referred to by the Examiner relates to operation of a large number of switch nodes not having a flow control function arranged between a pair of apparatus having a flow control function. As illustrated in FIG. 2 and disclosed in Shimojo at col. 4, lines 1-10, such a switch merely switches the ATM cells through from an input port to an output port so that there is end-to-end ATM cell traffic (*i.e.*, effectively a single leg from the flow control point of view) between the single pair of apparatus having flow control. Thus, all ATM traffic is effectively tunnelled. When there is a plurality of ATM switches on the route, each switch passes the ATM cells through.

The Examiner goes on at the bottom of page 4 through the top of page 5 of the office action to assert that a person with skill in the art would be motivated "to modify the system of Chuah by tunnelling lower level flow control information from through [*sic*] the ATM network, as suggested by Shimojo...[and that t]his modification can be performed according to the teachings of Shimojo [and]...would benefit by allowing for the transmission of flow control information to be transported between the first and second networks."

Applicants traverse this characterization of the applied art as well as the basis for motivation to combine Shimojo with Chuah, because Shimojo teaches away from at least one limitation recited in the pending claims.

Contrary to the Examiner's assertions, ***these portions of Shimojo do not teach or suggest a first connection leg supporting flow control*** on a lower transmission protocol level underlying the user level between a first flow control apparatus and a first ATM switch. Shimojo at col. 3:46-67 indicates that the portion of this reference identified by the Examiner identifies problems associated with the technique specifically relied upon by the Examiner. Thus, Applicants submit that Shimojo's suggestion of a large number of switching nodes without flow control teaches

away from Applicants' recited second leg because of the undesirability of this arrangement as clearly identified by Shimojo.

That is, the chain of devices identified by the Examiner do not establish a device pair having a flow control therebetween. This first connection leg does not support flow control because the ATM switch does not support flow control towards the first flow control apparatus. Similarly, at the opposite end of the connection, ***there is no third connection leg supporting a flow control*** on a lower transmission protocol level underlying the user level between a second ATM switch and a second flow control apparatus, *i.e.*, these devices do not establish a pair having a flow control therebetween. This third connection leg does not support flow control because the second ATM switch does not support flow control towards the second flow control apparatus in Shimojo. On the intermediate connection leg between the first and second ATM, ***there is no flow control either, since neither of the ATM switches support flow control***. Only the end apparatus pairs use and support flow control, *i.e.*, there is effectively only one flow control leg between the two apparatus at the ends of the leg, and not between the legs in the undesirable switching nodes without flow control.

As mentioned above, the portion of Shimojo relied upon by the Examiner teaches that ATM nodes which have no flow control function involve severe disadvantages regarding efficient utilization of network resources. Shimojo further and explicitly teaches away from the invention by requiring that ***each ATM switch node must be provided with a flow control function***. Moreover, since Chuah is completely silent about the use of flow control, there would be no motivation for a person having ordinary skill in the art to combine Chuah and Shimojo in the manner suggested by the Examiner. Accordingly, these references teach away from Applicants' invention as variously recited in the independent claims, and it is only through the use of improper hindsight analysis that these references would be looked upon to derive Applicants' novel and non-obvious invention, as claimed.

It is impermissible within the framework of 35 U.S.C. §103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.⁵

⁵ *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 230 USPQ 416 (Fed. Cir. 1986).

Further in this regard, As the Court of Customs and Patent Appeals, predecessor to the Federal Circuit, has held:

All relevant teachings of cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the claimed invention.⁶

The rejections in the Official Action amount, in substance, to nothing more than hindsight reconstruction of Applicants' invention by relying on isolated teachings of the applied art, without considering the overall context within which those teachings are presented. Without benefit of Applicants' disclosure, a person having ordinary skill in the art would not know what portions of [Chuah and Shimojo] to consider, and what portions to disregard as irrelevant or misleading.⁷

As previously discussed, Chuah fails to teach or suggest use of flow control at a particular node. In contrast, *Shimojo explicitly teaches away from the claimed invention by requiring that each switch node must be provided with a flow control function*. In stark contrast, Applicant's claim 23 for example, provides "*a first connection leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second connection leg not supporting flow control on the lower transmission level....*" Therefore, Shimojo would lead a person skilled in the art away from the claimed invention by requiring that each switch node must have a flow control function.

The solutions proposed by Shimojo exclude tunnelling, and instead use one of two techniques, the so-called "credit method" (see col. 6:57 through col. 7:21) and the so-called "rate-based control" (see col. 7:22 through col. 8:19).

Thus, *Shimojo explicitly teaches away from the variously claimed invention* in at least two aspects by teaching that *each* switch node *must be* provided with a flow control function (apparently to avoid use of tunnelling), *and that Appellants' variously recited tunnelling function is undesirable* due, at least in part, to an assertion of inefficient bandwidth utilization.

⁶ *In re Mercier*, 185 USPQ 774, 778 (CCPA 1975).

⁷ *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965).

Additionally, the *only* inter-RNC connection which may have been illustrated in Chuah is a dotted dashed line which merely denotes a signaling connection. There would not have been any motivation for the skilled person to apply flow control to a signaling connection. Still further, even if a person having ordinary skill in the art had applied the teachings of Shimojo to the system of Chuah, they would have required that *every* intermediate node that initially did not support flow control would be provided with a flow control apparatus providing such support.

Thus, Chuah as modified by Shimojo would have resulted in a solution which is *completely different* from Applicants' invention, particularly as claimed in each of independent claims 23, 24, and 27.

Accordingly, withdrawal of the rejection and allowance of independent claims 23, 24, and 27 are respectfully requested.

Unpatentability Rejection over Chuah and Shimojo in view of Edholm

Withdrawal of the rejection of claims 1, 14, and 28 under 35 U.S.C. §103(a) as allegedly being unpatentable over Chuah and Shimojo in view of Edholm (US 6,600,721) is requested. The Examiner has failed to make a *prima facie* case of unpatentability.

The Examiner asserts that Chuah teaches a first connection leg supporting flow control transmission protocol level underlying a user level; that Chua teaches an intermediate second connection leg not supporting flow control on the lower transmission level; and that Chuah teaches a third connection leg supporting flow control on the lower transmission protocol level. The Examiner continues by asserting that Shimojo teaches tunneling flow control information through the lower transmission protocol level of the second leg between the first and third legs in order to provide end-to-end flow control.

The Examiner admits that Chuah and Shimojo are deficient in providing a teaching or suggestion of using tunneling of flow control information by using in-channel/in-band signaling, and asserts that Edholm makes up for this admitted deficiency.

Specific Deficiencies of Chuah, Shimojo, and Edholm

The arguments submitted above concerning the various deficiencies of Chuah and Shimojo with respect to independent claims 23, 24, and 27 are incorporated herein in their entirety.

Independent claim 1

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system which includes, *inter alia*, “transmitting data over a connection comprising a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, ***and a third leg supporting flow control on the lower transmission protocol level, and tunnelling lower level flow control information as in-channel signalling through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control***...over the connection on the lower transmission protocol layer,” as recited in previously-presented independent claim 1 (*emphasis added*).

Independent claim 14

Further, the applied art, either alone or in combination, does not teach or suggest a telecommunications system that includes, *inter alia*, “a first connection leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second connection leg not supporting flow control the lower transmission level, ***a third connection leg supporting flow control on the lower transmission protocol level, a first node between the first and second legs, a second node between the second and third legs, wherein the first and second nodes are arranged to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control***...wherein ***the first and second nodes are arranged to tunnel said flow control information in in-channel signalling over the second leg***,” as recited in previously-presented independent claim 14 (*emphasis added*).

Independent claim 28

Finally, the applied art, either alone or in combination, does not teach or suggest a network node for a telecommunications system wherein the network node includes, *inter alia*, “a processor connected between a first connection leg and an intermediate second connection leg, ***wherein the processor is configured to relay communication between said first connection leg supporting flow control on a lower transmission protocol level underlying a user level on said first connection leg***, and said intermediate second connection leg connected to a second network node relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level, wherein the second leg does not support flow control on the lower transmission level, ***wherein the processor is configured to tunnel lower level flow control information as in-channel signaling through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control***...over the connection on the lower transmission protocol layer,” as recited in previously-presented independent claim 28 (*emphasis added*).

Discussion of Edholm and its Deficiencies

According to its Abstract, Edholm is purportedly directed to end node pacing for Quality of Service (QOS) and bandwidth management, wherein a system of pacing data between a network and an end node is described. The system determines a threshold bandwidth based on the receiving capabilities of a client device. A control circuit monitors the flow of data and adjusts latencies between packets of data to stay within the threshold bandwidth. By maintaining the flow of data within the threshold bandwidth, Edholm asserts that the need for flow control signals and large buffers is minimized.

Edholm "Teaches Away"

The Examiner asserts that Edholm teaches the use of “in-band signalling”. However, ***Edholm at col. 1:36-44 actually teaches away from the use of Applicants’ recited in-band signalling by stating that in-band flow control is inefficient and requires additional hardware to implement***. Thus, Edholm does not teach that for which the Examiner offers it. The law

regarding the use of impermissible hindsight in formulating an unpatentability rejection has been previously discussed above with respect to the unpatentability rejection of claims 23, 24, and 27.

Accordingly, since the applied art does not teach or suggest all the claimed limitations, reconsideration and allowance of independent claims 1, 14, and 28 are respectfully requested. Furthermore, dependent claims 3, 4, and 6 depend from patentable claim 1, and are submitted as being allowable at least on that basis, without further recourse to the patentable features recited therein.

Finally, as discussed above, *Edholm teaches away from Applicants' claimed invention by teaching that in-band flow control is inefficient and requires additional hardware to implement*. Thus, Applicants submit that the rejections should be withdrawn on this additional basis.

Unpatentability Rejection over Chuah, Shimojo, and Edholm and Akiyoshi

Withdrawal of the rejection of claims 3, 4, and 6 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Chuah, Shimojo, and Edholm in view of Akiyoshi (US 5,668,812) is requested. The Examiner has failed to make a *prima facie* case of unpatentability.

The Examiner asserts that Akiyoshi makes up for the deficiencies of Chuah, Shimojo, and Edholm by teaching an ATM adaptation layer on the lower transmission protocol level.

Notwithstanding whether or not Akiyoshi teaches that for which the Examiner offers it, Akiyoshi fails to make up for the previously-identified deficiencies of Chuah, Shimojo, and Edholm as discussed above with respect to independent claim 1 from which claims 3, 4, and 6 variously and ultimately depend. In particular, Akiyoshi does not make up for the teaching away of Edholm, discussed above.

Accordingly, reconsideration and allowance of dependent claims 3, 4, and 6 are respectfully requested.

Unpatentability Rejection over Chuah in View of Shimojo, Williams, and Akiyoshi

Withdrawal of the rejection of claims 7, 18 and 29 under 35 U.S.C. §103(a) as allegedly being unpatentable over Chuah, Shimojo, Williams (US 6,317,455), and Akiyoshi is requested. The Examiner has failed to make a *prima facie* case of unpatentability.

Discussion of Williams and its Deficiencies

According to its Abstract, Williams is purportedly directed to a system and method for user information transfer before modem connection in which high-speed modems are asserted as being made more efficient, particularly for transaction and Internet applications, by providing for transmission of pre-connection user data during modem training. A training sequence for a modem in accordance with the invention may be summarized as follows: beginning training of the modem at a first data rate using a defined training sequence; after a selected amount of training, transmitting pre-connection user data from the modem at up to the first data rate while continuing training of the modem; ending training; and enabling transmission of user data at a full connected data rate of the modem. The invention may also include the following training sequence before enabling transmission of user data at the full connected data rate of the modem: beginning secondary training of the modem at a second data rate using a defined training sequence; after a selected amount of secondary training, transmitting pre-connection user data from the modem at up to the second data rate while continuing secondary training of the modem; and ending secondary training.

The Examiner admits that the combination of Chuah, Shimojo, and Akiyoshi is silent with respect to providing a teaching or suggestion of out-of-traffic-channel signaling associated with the connection, and asserts that Williams makes up for this deficiency.

It appears that the Examiner has found a reference that merely mentions "out-of-channel" signaling in passing, without regard to the particular purpose or implementation of such signaling. In this regard, Williams teaches that "[g]enerally, a signaling method is needed between each modem and a modem controller or user interface to enable pre-connection user data to flow outside of the physical modem link. One such method is to use conventional modem control signals, such as CD (carrier detect) and CTS (clear-to-send) to provide "out-of-channel" signaling and flow

control. Other techniques, such as known methods of "in-channel" signaling and flow control, may be used."

Whether or not Williams fairly teaches or suggests out-of-channel signaling applicable to a mobile telecommunications systems as suggested by the Examiner, which Applicants do not agree, Williams does not make up for the previously-identified deficiencies of Chuah, Shimojo, and Edholm with respect to the rejection of independent claims 1, 14, 23, 24, etc., similar in many respects to independent claims 7, 18, and 29.

Specific Deficiencies of Chuah, Shimojo, Williams, and Akiyoshi

Independent Claim 7

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system that includes, *inter alia*, "transmitting data over a connection comprising ***a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, and a third leg supporting flow control on the lower transmission protocol level***, wherein said second leg comprises an ATM connection, and said lower transmission protocol level includes an ATM adaptation layer, ***and tunnelling said flow control information over the second leg in an out-of-traffic-channel signalling associated with a connection***," as recited in previously-presented independent claim 7 (*emphasis added*).

Independent Claim 18

The applied art, either alone or in combination, does not teach or suggest a telecommunications system that includes, *inter alia*, "a first connection leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second connection leg not supporting flow control the lower transmission level, ***a third connection leg supporting flow control on the lower transmission protocol level, a first node between the first and second legs, a second node between the second and third legs, wherein the first and second nodes are arranged to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to***

provide end-to-end flow control...on the lower transmission protocol layer, and wherein the first and second nodes are arranged to tunnel said flow control information in out-of-traffic-channel signalling over the second leg,” as recited in previously-presented independent claim 18 (emphasis added).

Independent Claim 29

Finally, the applied art, either alone or in combination, does not teach or suggest a network node for a telecommunications system which includes, *inter alia*, “a processor connected between a first connection leg and an intermediate second connection leg, *wherein the processor is configured to relay communication between a first connection leg supporting flow control on a lower transmission protocol level underlying a user level a first connection leg, and said intermediate second connection leg connected to a second network node relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level*, wherein the second leg does not support flow control on the lower transmission level, *wherein the processor is configured to tunnel lower level flow control information in an out-of-traffic-channel signalling associated with a connection through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control...over the connection on the lower transmission protocol layer,” as recited in currently-amended independent claim 29 (emphasis added).*

Accordingly, reconsideration and allowance of independent claims 7, 18, and 29 are respectfully requested.

Unpatentability Rejection over Chuah in View of Shimojo, Akiyoshi, and Edholm

Withdrawal of the rejection of claims 8-12, 19, 21, 25 and 26 under 35 U.S.C. §103(a) as allegedly being unpatentable over Chuah in view of Shimojo, Akiyoshi, and Edholm is requested. The Examiner has failed to make a *prima facie* case of unpatentability. The legal requirements for unpatentability have been previously discussed. Chuah, Shimojo, Akiyoshi, and Edholm have been discussed above.

Specific Deficiencies of the Combination

The Examiner asserts that Edholm teaches the use of flow control. However, ***Edholm at col. 1:36-44 actually teaches away from the use of Applicants' variously recited flow control by stating that in-band flow control is inefficient and requires additional hardware to implement.*** Thus, Edholm does not teach that for which the Examiner offers it. The law regarding the use of impermissible hindsight in formulating an unpatentability rejection has been previously discussed above with respect to the unpatentability rejection of claims 23, 24, and 27.

Chuah and Shimojo are deficient with respect to providing a teaching or suggestion of the variously recited first, second, and third legs, as discussed above with respect to independent claims 23, 24, and 27.

Independent Claim 8

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system which includes, *inter alia*, ***“transmitting data over a connection comprising a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, and a third leg supporting flow control on the lower transmission protocol level, wherein said second leg comprises an ATM connection, and said lower transmission protocol level includes an ATM adaptation layer, tunnelling lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control...over the connection on the lower transmission protocol layer, said tunneling further comprising recognizing at a first node between the first and second legs a need to start a flow control towards the second leg, sending a flow control ON request over the second leg, receiving the flow control ON request at a second node between the second and third legs, stopping sending new data or decreasing data rate from the second node to the first node over the second leg in response to the flow control ON request,”*** as recited in previously-presented independent claim 8 (*emphasis added*).

Independent Claim 10

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system that includes, inter alia, *“transmitting data over a connection comprising a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, and a third leg supporting flow control on the lower transmission protocol level, wherein said second leg comprises an ATM connection, and said lower transmission protocol level includes an ATM adaptation layer, tunnelling lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control...over the connection on the lower transmission protocol layer, said tunneling further comprising recognizing at a first node between the first and second legs a need to start flow control towards the second leg, sending a flow control ON request over the second leg, receiving the flow control ON request at a second node between the second and third legs, activating in the second node flow control towards the third leg in response to the flow control ON request,”* as recited in previously-presented independent claim 10 (*emphasis added*).

Independent Claim 11

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system which includes, inter alia, *“transmitting data over a connection comprising a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, and a third leg supporting flow control on the lower transmission protocol level, wherein said second leg comprises an ATM connection, and said lower transmission protocol level includes an ATM adaptation layer, tunnelling lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control...over the connection on the lower transmission protocol layer, said tunneling further comprising recognizing at the first node a need of stopping the flow control towards the second leg, sending a flow control OFF request over the second leg, receiving the flow control OFF request at the second node,*

deactivating in the second node flow control towards the third leg in response to the flow control ON request", as recited in previously-presented independent claim 11 (*emphasis added*).

Independent Claim 12

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system which includes, *inter alia*, "**transmitting data over a connection comprising a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, and a third leg supporting flow control on the lower transmission protocol level**, wherein said second leg comprises an ATM connection, and said lower transmission protocol level includes an ATM adaptation layer, **tunnelling lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control**...over the connection on the lower transmission protocol layer, **said tunneling further comprising recognizing the need for starting or stopping the flow being based on the status of a receiving or transmitting buffer in the first node or on incoming flow control information received over the first leg**", as recited in previously-presented independent claim 12 (*emphasis added*).

Independent Claim 19

The applied art, either alone or in combination, does not teach or suggest a telecommunications system which includes, *inter alia*, "...an intermediate second connection leg not supporting flow control on the lower transmission level, **a third connection leg supporting flow control on the lower transmission protocol level...a second node between the second and third legs, wherein the first and second nodes are arranged to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control**...over the connection on the lower transmission protocol layer, and **wherein the first and second nodes are arranged to recognize a need to start or stop flow control towards the second leg and to send a flow control ON request or a low control OFF request, respectively, over the second leg, and the first and second peer entities are responsive to receiving the flow control ON request or the flow control OFF request for stopping or starting, respectively, the sending, or decreasing and increasing data**

rate, respectively, of data towards the second leg,” as recited in previously-presented independent claim 19 (emphasis added).

Independent Claim 21

The applied art, either alone or in combination, does not teach or suggest a telecommunications system which includes, *inter alia*, “...an intermediate second connection leg not supporting flow control the lower transmission level, ***a third connection leg supporting flow control on the lower transmission protocol level...a second node between the second and third legs, wherein the first and second nodes are arranged to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control***...over the connection on the lower transmission protocol layer, and *wherein the recognition of the need for starting or stopping the flow based on the status of a receiving or transmitting buffer in the nodes or on incoming flow control information received over the first or the third leg,” as recited in previously-presented independent claim 21 (emphasis added).*

Independent Claim 25

The applied art, either alone or in combination, does not teach or suggest a network node for a telecommunications system which includes, *inter alia*, “...a processor connected between a first connection leg and an intermediate second connection leg, wherein the processor is configured to relay communication between said first connection leg supporting flow control on a lower transmission protocol level underlying a user level on said first connection leg, and ***said intermediate second connection leg connected to a second network node relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level***, wherein the second leg does not support flow control on the lower transmission level, *wherein the processor is configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control*...over the connection on the lower transmission protocol layer, *the processor is configured to recognize a need to start or stop flow control towards the second leg and to send a flow control ON request or a low control OFF request, respectively, over the second leg, and the processor is responsive to receiving a flow*

control ON request or a flow control OFF request for stopping or starting, respectively, the sending, or decreasing and increasing data rate, respectively, of data towards the second leg,” as recited in previously-presented independent claim 25 (*emphasis added*).

Independent Claim 26

Finally, the applied art, either alone or in combination, does not teach or suggest a network node for a telecommunications system which includes, *inter alia*, “a processor... configured to relay communication between said first connection leg supporting flow control on a lower transmission protocol level underlying a user level on said first connection leg, and *said intermediate second connection leg connected to a second network node relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level*, wherein the second leg does not support flow control on the lower transmission level, *wherein the processor is configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control*...over the connection on the lower transmission protocol layer, and *wherein the recognition of the need for starting or stopping the flow is based on the status of a receiving or transmitting buffer in telecommunication system nodes or on incoming flow control information received over the first or the third leg,”* as recited in previously-presented independent claim 26 (*emphasis added*).

Accordingly, since the applied art does not teach or suggest all the limitations of independent claims 8, 10-12, 19, 21, 25 and 26, withdrawal of the rejection and allowance of these claims are respectfully requested. In addition, dependent claim 9 depends from patentable claim 8, and is submitted as being allowable at least on that basis, without further recourse to the patentable features recited therein.

Unpatentability Rejection over Chuah in View of Shimojo, and Akiyoshi

Withdrawal of the rejection of claims 5 and 30 under 35 U.S.C. §103(a) as allegedly being unpatentable over Chuah in view of Shimojo and Akiyoshi is requested. The Examiner has failed to make a *prima facie* case of unpatentability. The legal requirements for unpatentability have been previously discussed. Chuah, Shimojo and Akiyoshi have also been discussed above.

Specific Deficiencies of Chuah, Shimojo, and Akiyoshi

Independent Claim 5

The applied art, either alone or in combination, does not teach or suggest a data transmission method in a telecommunications system that includes, *inter alia*, "***transmitting data over a connection comprising a first leg supporting flow control on a lower transmission protocol level underlying a user level, an intermediate second leg not supporting flow control on the lower transmission level, and a third leg supporting flow control on the lower transmission protocol level***, wherein said second leg comprises an ATM connection, and said lower transmission protocol level includes an ATM adaptation layer, ***tunnelling lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in order to provide end-to-end flow control*** and thereby data integrity over the connection on the lower transmission protocol layer, ***said tunneling further comprising encapsulating the flow control information in an ATM adaptation layer service data in one of the following ways: inserting an octet carrying the flow control information before a first user data octet in a payload field of the ATM adaptation layer service data unit, inserting a bit or bits carrying the flow control information before first user data bits in a payload field of the ATM adaptation layer service data unit, inserting an octet or a bit or bits carrying the flow control information in the ATM adaptation layer service data unit as the only payload information in the payload field, or inserting an octet or a bit or bits carrying the flow control information with a limited amount of user data in the payload of the ATM adaptation layer service data unit, transporting the ATM adaptation layer service data unit to the other end of the second leg in accordance with an ATM network protocol, and extracting the flow control information from the ATM adaptation layer service data unit at said other end of the second leg,***" as recited in previously-presented independent claim 5 (*emphasis added*).

Independent Claim 30

The applied art, either alone or in combination, does not teach or suggest a network node for a telecommunications system that includes, *inter alia*, "a processor connected between a first connection leg and an intermediate second connection leg, ***wherein the processor is configured to relay communication between said first connection leg supporting flow control on a lower***

transmission protocol level underlying a user level on said first connection leg, and said intermediate second connection leg connected to a second network node relaying the communication further to and from a third connection leg supporting flow control on the lower transmission protocol level, wherein the second leg does not support flow control on the lower transmission level, wherein the processor is configured to tunnel lower level flow control information through the lower transmission protocol level of the second leg between said first and third legs in one of the following alternative ways: inserting an octet carrying the flow control information before a first user data octet in a payload field of the ATM adaptation layer service data unit, inserting a bit or bits carrying the flow control information before first user data bits in a payload field of the ATM adaptation layer service data unit, inserting an octet or a bit or bits carrying the flow control information in the ATM adaptation layer service data unit as the only payload information in the payload field, or inserting an octet or a bit or bits carrying the flow control information with a limited amount of user data in the payload of the ATM adaptation layer service data unit,” as recited in previously-presented independent claim 30 (emphasis added).

Accordingly, since the applied art does not teach or suggest all the limitations of independent claims 5 and 30, withdrawal of the rejection and allowance of these claims are respectfully requested.

Conclusion

All rejections having been addressed, Applicant submits that each of pending claims 1, 3-12, 14, 18-19, 21, and 23-30 in the present application is in immediate condition for allowance. An early indication of the same would be appreciated.

In the event the Examiner believes that an interview would be helpful in resolving any outstanding issues in this case, the Undersigned Attorney is available at the telephone number indicated below.

For any fees that are due during the pendency of this application, including fees for excess claims or extensions of time, please charge Deposit Account Number 03-3975 from

which the Undersigned Attorney is authorized to draw. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Date: July 15, 2008

Respectfully submitted,

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